

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement (IDS) submitted on 05/06/2008, is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### *Allowable Subject Matter*

2. **Claim 11** is allowed.
3. The following is an examiner's statement of reasons for allowance:

**Regarding claim 11, the closest prior art of record, Li (US 7,068,628)** teaches a MIMO OFDM system includes a plurality of space-time encoders for encoding respective data blocks with independent space-time codes. Lee fails to teach alone or in combination a bidirectional signal processing method for the parallel transmission of digital transmit data streams, in regular and singular radio channels, of a multiple input-multiple output radio transmission system (MIMO system), having suboptimal rank-adaptive support for all sub-channels based on the adaptive channel inversion principle ACI according to  $DQ = I$ , where  $I$  = unity matrix for a complete interference cancellation according to  $P_i = 1/\sim i$ , where the number  $N_d$  of the currently usable sub-channels is selected for a modification of the current transmit data vector  $D$  such that the spectral efficiency  $K$  of the transmission is maximized and a constant signal-to-noise ratio is produced according to  $SNR_{ACI/k} =$  (see claim original formula); and selecting an

optimal coding and modulation method based on a determined signal-to-noise ratio  $\text{SNR}_{WF/k}$  or  $\text{SNR}_{ACI/k}$  with a specific bit error rate, BER, to be complied with, where in case a) of the optimal rank-adaptive channel support, the optimal coding and modulation method is selected in each case for each of the  $N_d$  active sub-channels or in case b) of the suboptimal rank-adaptive channel support, a common coding and modulation method is selected for all  $N_d$  active sub-channels as set forth in claim 11.

Dependent claims 12-27 are allowable for the same reason as set forth above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Li (US 7,068,628) teaches a MIMO OFDM system includes a plurality of space-time encoders for encoding respective data blocks with independent space-time codes.

Walton (US 2004/0136349) teaches a MIMO system supports multiple spatial multiplexing modes for improved performance and greater flexibility.

Walton (US 7,302,009) teaches an access point in a multi-antenna system broadcasts data using spatial spreading to randomize an "effective" channel observed by each user terminal for each block of data symbols broadcast by the access point.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael T. Vu whose telephone number is (571) 272-8131. The examiner can normally be reached on 8:00am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles N. Appiah can be reached on 571-272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michael Vu/  
Examiner  
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